

Remarks/Arguments:

Claims 2-6, 8-16 and 18-23 pending in this application, of which this Amendment adds dependent claims 20-23. In the Office Action dated March 7, 2006, the Examiner has rejected claims 2-6, 12 and 16 under 35 USC 103(a) as obvious over Schilling (US 6,296,092) in view of Turlington (US 5,940,031); and has rejected claims 8-11, 13-15 and 18-19 over Schilling and Turlington in further view of and Bainton (US 6,064,241). The Applicants thank the Examiner for the particularized detailed remarks in the Office Action.

This Amendment adds to each independent claim that the receiver tracking signal is derived from an accumulated plurality of outputs from a carrier loop tracking circuit. Added dependent claims 20-23 further specify a formula for the receiver tracking signal. This subject matter is disclosed at page 7 lines 25 to page 8 line 8. Each of these amendments is seen to patentably distinguish over the prior art, as detailed below.

Schilling is directed to resolving Doppler shifts in the environment of a remote station RS and a base station BS (abstract; col. 2 lines 1-3; col. 4 lines 4-10). The present invention is directed toward the environment of an access point AP and customer premise equipment CPE (page 1 lines 13-17), and toward an increased speed in resolving frequency errors such as those due to drift (page 2 lines 9-22). The differences are in degree rather than in kind; systems to address Doppler shifts in mobile communication systems must be designed for large and relatively fast-changing frequency errors; systems to address frequency drift in an AP-CPE system address much smaller frequency disparities that take longer to evolve.

Schilling determines a second correct carrier frequency f_2 and adds or subtracts a Doppler frequency shift f_D to yield the shifted frequency $f_2 - f_D$ or $f_2 + f_D$ in order to correct for Doppler frequency shifts arising from relative movement of the RS (Schilling, col 7 line 52 to col. 8 line 4). Schilling is not seen to use an accumulated set of frequency corrections as substantially recited in the amended independent claims ("an accumulated plurality of outputs for a carrier loop tracking circuit"). To do so would appear to render the Schilling apparatus less accurate, because if the Doppler shift f_D is determined at a given time as Schilling actually discloses, attenuating that Doppler shift f_D over an accumulation period prior to applying it would appear to make the correction less accurate of the actual Doppler shift experienced by the signal. A tracking signal derived from an accumulated plurality of carrier

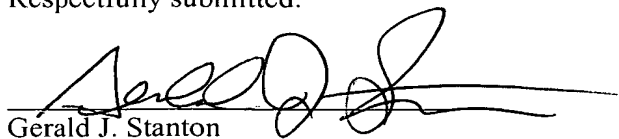
loop tracking circuit outputs is necessarily attenuated as compared to a single carrier loop tracking circuit output, else the resultant tracking signal would not be "from a *plurality*" of such outputs as now claimed. To modify Schilling so as to accumulate Doppler shifts therefore necessarily attenuates Schilling's currently-determined Doppler shift f_D , due to other determined shifts of the accumulation. Such a modification to Schilling, which is neither asserted by the Office Action nor admitted by the Applicants as within ordinary skill, would appear always to trail in accuracy as compared to the disclosed Schilling apparatus due to the attenuation, and the cited art does not appear to motivate such a modification.

The Applicants have determined that attenuating the applied frequency corrections by accumulating a plurality of tracking loop circuit outputs would be advantageous in the environment of frequency drift correction. A similar modification to Schilling would appear to render Schilling's much larger Doppler-related corrections less accurate than Schilling actually discloses.

Turlington is cited for teaching time multiplexing a digital phase shifter circuit 134 between receiver and transmitter baseband systems (col. 4 line 66 to col. 5 line 17 and Fig. 6). Turlington is not seen to accumulate frequency corrections by its digital phase shifter 134, and the Office Action does not contend that it does. Therefore, the combination of Schilling and Turlington, with or without Bainton, is not seen to render obvious the subject matter of any independent claim as amended herein. None of those references are seen to disclose, teach or suggest the specific frequency for the tracking signal recited in added claims 20-23.

In view of the current amendments and remarks above, all claims are now seen to patentably distinguish over the cited art, alone or in any combination. The Applicants respectfully requests that the Examiner pass pending claims 2-6, 8-16 and 18-23 to issue. The undersigned representative welcomes the opportunity to resolve any matters that may remain, formal or otherwise, via teleconference at the Examiner's discretion.

Respectfully submitted:


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July 6, 2006
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